

## WHAT IS CLAIMED IS:

1. An engine generator comprising a generator connected to an engine, a rectifier circuit which rectifies the output of the generator, and an inverter in which the output of the rectifier circuit is converted into AC power of a predetermined frequency for output, wherein

the generator is a dual-purpose generator both for a generator function and for an electric motor function,

a drive inverter circuit which drives the dual-purpose generator as an engine starting electric motor is provided,

the rectifier circuit comprises rectifying elements which are provided in parallel with each switching element of the drive inverter circuit,

a DC-DC converter, in which a low DC voltage on a primary side and a high DC voltage on a secondary side are set for the output-terminal side of a battery and the output side of the rectifier circuit, respectively, is provided between the output side of the rectifier circuit and the output terminal of the battery, and

the dual-purpose generator is driven as an engine starting electric motor, using the battery as a power supply, when the engine is started.

2. The engine generator according to claim 1, wherein

a regulator which controls an input voltage to the inverter is provided on the output side of the rectifier circuit, and the secondary side of the DC-DC converter is connected between the rectifier circuit and the regulator.

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3. The engine generator according to claim 1, wherein the DC-DC converter is a two-way DC-DC converter.

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4. The engine generator according to claim 3, wherein

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the two-way DC-DC converter comprises: a terminal for a low-voltage side; a terminal for a high-voltage side; a transformer including a winding wire for the low-voltage side and a winding wire for the high-voltage side; a switching element for the low-voltage side inserted between the terminal for the low-voltage side and the winding wire for the low-voltage side; a switching element for the high-voltage side inserted between the terminal for the high-voltage side and the winding wire for the high-voltage side; a rectifying element for the low-voltage side connected in parallel with the switching element for the low-voltage side; a rectifying element for the high-voltage side connected in parallel with the switching element for the high-voltage side, and a control circuit which controls the switching element for the low-voltage side and the switching element for the high-voltage side.

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